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ABSTRACT

A comparison of effects of three preschool intervention programs designed to prepare disadvantaged Mexican-American children for school is the subject of this study. The San Antonio Urban Educational Development Center (SAUEDC) preschool program (N=16) uses an instructional program built on four structural components: (1) concept-affect formation, (2) development of sensory motor skills, (3) development of language skills, and (4) development of thinking processes. The second program (N=15) is a special Parent-School-Community Involvement project intended to encourage parental action to foster child development. Finally, three San Antonio Day Care Centers (N=14) funded as Head Start programs were examined. The subjects were all 3-year-old Mexican-American children. Each group was pre- and posttested on the Leiter International Performance Scale, the Peabody Picture Vocabulary Test (FORM A) in English, and Peabody (FORM B) in Spanish. Analysis of the test-generated data revealed that (as predicted) at pretest all the subjects scored substantially below national norms on instruments that required language in test administration and approximately at national norms on instruments that didn't require language in test administration. Furthermore, children in the SAUEDC program achieved significantly greater gains in I.Q. scores than children in either of the other groups. (MH)

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1968-69 FINAL EVALUATION REPORT

FOR

EARLY CHILDHOOD EDUCATION LEARNING SYSTEM

SAN ANTONIO URBAN EDUCATIONAL DEVELOPMENT CENTER

PS003214

SOUTHWEST EDUCATIONAL DEVELOPMENT LABORATORY
800 Brazos
Austin, Texas
October 1969

PREFACE

The Early Childhood Education Learning System, under development by the Southwest Educational Development Laboratory, is designed to provide a wide range of learning experiences for children, aged 3-5. The learning system is built on four structural components: (1) concept-affect formation, (2) development of sensory motor skills, (3) development of language skills, and (4) development of thinking processes.

Adaptations of the learning system are being pilot tested with a variety of target populations in Louisiana and Texas -- with preschool migrant children homebased in McAllen, Texas; with urban Mexican American children in San Antonio, Texas; with urban Black children in Fort Worth, Texas; and with rural, non-farm Black children in Bossier Parish, Lousisana.

This evaluation report describes the results of the program with disadvantaged three-year-old Mexican American children in San Antonio during the 1968-69 school year. The program, designed and pilot tested in the Good Samaritan Center, is a cooperative endeavor of the Southwest Educational Development Laboratory, the Good Samaritan Center, and the National Institute of Mental Health.

Overall, the findings indicate that the learning system for three-year-olds at the Good Samaritan Center brought about substantially greater improvement than did two other approaches used with control group children of the same ethnic and socioeconomic background.

Because of the results thus far, as well as subjective appraisals by professional staff members of the Laboratory, the Laboratory extended the program to the Edgewood Independent School District (San Antonio) and the

McAllen Independent School District for school year 1969-70. In addition, the program was introduced as a replacement for the present preschool program in Bossier Parish, Louisiana.

The Early Childhood Education Learning System's goal is to develop tested instructional materials and teacher education-staff development techniques which will have a positive influence on the improvement of education for disadvantaged children. This report contains encouraging indications that significant progress toward this goal is being made.

Edwin Hindsman
Executive Director

FOREWORD

Early learning,the education of young children, has become an increasingly important concern of educators in recent years. Most of the effort to develop new programs for early childhood education has been devoted to English-speaking children. This report focuses on a need of equal importance -- a program devoted to Spanish-speaking Mexican American children.

Research literature has documented the tremendous rate of intellectual and language development in children prior to age six. The same literature has revealed that development in these two critical areas lags for children in a poverty environment. Thus, new programs have been established to build on the strengths of these disadvantaged children while at the same time seeking to overcome their deficiencies. The program reported here incorporates such a strategy by building on the child's native language, Spanish, and using it to introduce him to intellectually and linguistically stimulating activities.

Credit for the program itself should be given to Mrs. Shari Nedler, Early Childhood Education Program Director, and Mrs. Connie Swander, director of the program test site. This report has been prepared by Mrs. Peggy Sebera, Site Evaluation Coordinator, with assistance from Hugh Poyner and Dick Calkins of the Laboratory Data Processing Branch.

This evaluation effort already has had an impact on program development and extension. When the development goes through another phase, extending to include five-year-olds, this program should become an effective vehicle to enable thousands of disadvantaged Mexican American children to have an enlightened and equal opportunity in education.

Robert Randall
Director, Research and
Evaluation Division

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ABSTRACT OF REPORT

Comparison was made of the effects of three preschool intervention programs on economically deprived three-year-old Mexican American children in San Antonio, Texas, during the school year 1968-69. Two of these programs were conducted under the auspices of the Good Samaritan Center of San Antonio and the Southwest Educational Development Laboratory. The third program, sponsored by the Office of Economic Opportunity and conducted by the Economic Opportunity Development Corporation of San Antonio, is a preschool program operated as a Head Start program.

The programs each were based on the same rationale: to intervene in the development of disadvantaged preschool children whose native language is different from that of the dominant culture in order to help them develop a readiness for entry into regular first grade classrooms. Each program approached the problem in a different manner.

The San Antonio Urban Educational Development Center (SAUEDC) preschool program for Mexican American children was first established in 1965 by the Good Samaritan Center under a funding agreement with the National Institute of Mental Health. During the 1968-69 school year an instructional program for three- and four-year-olds was written by staff members of the Southwest Educational Development Laboratory and Good Samaritan Center. This program is a learning system built on four structural components: (1) concept-affect formation, (2) development of sensory motor skills, (3) development of language skills, and (4) development of thinking processes.

In this study, the three-year-old pupils in the SAUEDC program (designated as Group T_1) are compared with the three-year-old children of parents who, through SAUEDC, received a special Parent-School-Community

Involvement treatment program intended to encourage parental action to foster child development (Group T_2). For further comparison, 19 children of similar background -- age three, of Mexican American parentage, and of the same socioeconomic status -- from three San Antonio Day Care Centers were studied (Group T_3).

There were 16 children in Group T_1 and 15 in Group T_2; initially there were 19 subjects in Group T_3, but only 14 of these children were available for posttesting in the spring of 1969.

The SAUEDC evaluation staff administered to each of the three groups of children a test battery of three pre- and posttest instruments: (1) the Leiter International Performance Scale, (2) the Peabody Picture Vocabulary Test (Form A) in English, and (3) the Peabody (Form B) in Spanish. In addition, the staff administered to Groups T_1 and T_3 the Laboratory-developed Child Performance Checklist (Level 3); and the teaching staff administered to Group T_1 the Preschool Attainment Record (PAR). The test results were subjected to an analysis of variance and, as appropriate, to an analysis of covariance.

> All three groups at pretest on standardized development instruments which required the use of language in test administration scored substantially below national norms.
>
> All three groups at pretest on standardized development instruments which did not require the use of language in test administration scored at, approximately, the national norms.
>
> Group T_1 (the San Antonio Urban Educational Development Center pupils taught with the Laboratory-developed program) achieved a statistically significant greater gain on each test than either Group T_2 or Group T_3.

As a result of findings based on results of the 1968-69 school year, the SAUEDC program, after selected revisions have been completed, will be tested more comprehensively during the school year 1969-70 by expansion of the program to additional test school sites. A similar testing program for

four-year-olds and five-year-olds will be instituted at both SAUEDC and other sites. The developmental program for five-year-olds will be completed, instructional materials written, and initial testing performed. In addition, a Parent Education program will be developed and pilot tested. This program will involve mothers of preschool children who will be trained to perform in the role of teachers in the home.

I. INTRODUCTION

The detrimental effects of children's entering first grade unprepared and unready for the standard school programs have been recognized for some years. During the past decade, educators have focused attention on pre-school intervention programs to prevent these disadvantages which face many children.

In September 1968 the Southwest Educational Development Laboratory entered into a joint funding agreement with NIMH, under which funds were provided to support the development of a bilingual curriculum for these children. During the 1968-69 school year, the joint staff provided under this agreement developed a written curriculum for three- and four-year-old pupils at the SAUEDC.

This evaluation study includes analyses and comparisons of results for three-year-old children in three programs:

- The SEDL-Good Samaritan Center bilingual curriculum presented at the Center by a trained staff.
- A Laboratory-Center Parent Involvement Program in which parents were taught how to conduct intellectually stimulating activities with their children to enhance the children's development.
- The programs used at San Antonio Day Care Centers, funded as Head Start programs by the Office of Economic Opportunity.

This report is a description of these programs and an evaluation and comparison of their operations in 1968-69.

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RATIONALE

Children from economically impoverished homes often are totally unfamiliar with experiences commonplace for middle-class children. The

physical and social, as well as the intellectual, development of the disadvantaged child often is hampered and delayed, and may be retarded permanently. Lacking the stimulation and opportunities afforded other children, the disadvantaged child enters first grade without the necessary skills to compete in a program based on the experiential and developmental level of the middle-class child. He is often deficient in perceptual skills -- auditory, visual, and vocal. This deficiency impairs his use of both oral and written language.

In addition to the language problem faced by all disadvantaged children, the Mexican American child enters school speaking Spanish, rather than the language of the broader community. He usually has little or no knowledge of English; his proficiency in Spanish is often limited, as well.

A child's concept of himself and those around him is as crucial to his success in life as are his intellectual skills. If he does not have confidence in his own ability to succeed, he will not try to meet the challenges that confront him in school and throughout his later years. The child, therefore, must be given the opportunity to succeed in many things. Activities he can master must be designed to evoke curiosity and exploration, to provide a further challenge supported by greater confidence in his own abilities and in his capacity to undertake still greater tasks. A confident child is better able to learn and develop to his full potential than is the child who has no confidence in his ability to master any task.

Physical development -- the mastering of essential motor skills and learning of good health habits -- is an important part of each child's development. In addition, he must learn social skills, how to relate to many other persons.

Although the emphasis, the methodology, and the program content vary widely among the three programs described in this report, each attempts to overcome the disadvantages faced by the preschool child of low socioeconomic

circumstances and Mexican American origin. Each seeks to develop the child's cognitive, physical, and social skills, The SAUEDC preschool program attempts to achieve this development by a planned educational program. The SAUEDC Parent Involvement program uses an indirect method of involving parents in the education of the child. The Day Care Centers stress care, play, and social development and encourage the child's development of imagination and artistic abilities through special activities.

The Laboratory-NIMH-SAUEDC evaluation staff administered pretests and posttests, as described later, to three-year-old children in the three programs. The purpose of this evaluation was to determine the relative developmental gain of the children during one academic year, and thus the relative advantages of the three approaches.

HYPOTHESES TO BE TESTED

The evaluation program for 1968-69 was intended to permit the testing of several hypotheses regarding children from this socioeconomic strata and ethnic origin. The evaluation also provided for examination of the effects of particular developmental programs and the desirability of modifying the SAUEDC programs in particular respects.

Hypothesis I

> Children from educationally deprived homes will score below national norms on standardized test instruments which require the use of language in test administration.

Hypothesis II

> Children from educationally deprived homes, when tested on standardized instruments which do not require language in the test administration, will score at or approximately at national norms for middle-class children.

Hypothesis III

The Laboratory-planned Early Childhood Education System will raise the intellectual performance level, as measured by standardized instruments, of the impoverished Mexican American child significantly more than will:

a. An indirect intervention in the child's development through the use of a structured Parent Involvement program, or

b. A direct intervention through a traditional nursery care program, as exemplified by the programs of selected San Antonio Day Care centers.

Note: Because the SAUEDC program included only one class of three-year-old children, it is not possible to test any hypothesis relating to such elements of the program as preparation of teaching staff, attitudes of staff, differences in emphasis or sequence of content, etc. In future years, more comprehensive testing should become possible.

II. DESCRIPTION OF THE TREATMENT PROGRAMS

The three programs described and evaluated are substantially different in program content, in methodology, in personnel and cost requirements, and in other ways. All three, however, are concerned with children of very low socioeconomic status from Mexican American families, living in an urban, deprived area of San Antonio. Each program is one of intervention, attempting to reach preschool children and enhance their development. Following is a description of the different approaches used and the elements of each of the three programs.

SAN ANTONIO URBAN EDUCATIONAL DEVELOPMENT CENTER (T_1)

The San Antonio Urban Educational Development Center operates a bilingual preschool program for disadvantaged Mexican American children, ages three to five, living in the neighborhood served by the Good Samaritan Center, where the program is conducted.

The Pupil Population

The children are drawn from a community comprised almost entirely of disadvantaged Mexican Americans. All the children in the Center are from homes with incomes below the poverty range, as determined by the Orshansky Index. All are from Mexican American families and speak Spanish primarily, although a few children had a limited knowledge of English.

The Center program includes instructional elements for 14 five-year-olds, 16 four-year-olds, and 16 three-year-olds. This evaluation applies only to the program for three-year-olds because only this program was considered ready for evaluation during 1968-69. Table 1 shows the distribution of the three-year-old children by age, sex, high-low poverty income status, and initial test scores.

TABLE 1

SAUEDC THREE-YEAR-OLD PUPILS: DISTRIBUTION BY SEX, POVERTY STATUS, AND AGE (MONTHS)

Sex Distribution		Poverty Low	Poverty High	Age, in Months 36 38	39 41	42 44	45 47	Pretest Scores on Stated Instruments: Leiter I.P. Scale	Peabody Picture Vocab.Test Spanish	Preschool Attainment Record (PAR)
Male	8	4	4	2	2	2	2			
Female	8	4	4	2	2	2	2			
Total	16	8	8	4	4	4	4	107.06	87.63	99.94

The community is an area southwest of downtown San Antonio, bounded by Zarzamora Street on the east, Cupples Road on the west, Guadalupe Street on the north, and Brady Boulevard on the south.

All the subjects are from families who have lived in the community for at least two years and have resided in San Antonio for at least five years. From 20 to 25 percent of the children live in public housing, conforming to the percentage for all families living in the community.

Instructional Components

The San Antonio Urban Educational Development Center has developed instructional materials for five major training areas. These are:

- Visual Training
- Auditory Training
- Motor Training - Gross and Fine
- English Language Instruction
- Expanded Language Instruction

The instructional program builds upon each child's ability in his native language. The program goals are to strengthen the child's conception of self as a worthy individual from a worthy heritage, to develop his visual

and auditory and motor skills, and to provide opportunities for his sound social development.

Skill outlines representing three-year objectives have been developed for each training area. The curriculum consists of sequenced series of lessons that begin with the lower order of skill competencies and proceed systematically to high level tasks. Each activity is written with a behavioral objective that relates to a higher order skill and describes in behavioral terms what the child should be able to do as a result of the particular learning experience.

The instructional activities have been organized into weekly units that conform to the overall conceptual content. Wherever possible, lessons have been planned to correlate with the language being introduced within the unit. Many of the concepts are initially unfamiliar to the child; and, for mastery, more than one instructional activity is provided. Use of the unit approach provides opportunity for the child to apply these concepts within different contexts. The units have been carefully selected so that content relates meaningfully to the child's experiential background. A written draft of the program for three- and four-year-olds is available for comprehensive testing and necessary revisions during the 1969-70 school year. The program for five-year-olds lags only slightly behind.

Instructional Methodology

The actual learning system is based on techniques or approaches which carefully stress the development of cognitive skills, language competency, and perceptual skills. Methods used to achieve these goals are pupil grouping for maximum mastery and behavior modification and the use of concrete objects in presenting lessons.

Cognitive Development

The systematic presentation of concepts, perceptual-motor, and language activities is designed to support the development of thinking processes. Program activities focus on the child's acquisition of cognitive skills necessary for abstract thinking. Beginning with the development of cognitively-directed perceptions, lesson programming incorporates carefully delineated questions related to learning experiences to develop the skills needed for making observations and analyses of the surrounding world. This "coding process" ability is expanded by using language as the chief means for abstracting and internalizing an almost endless number of properties, and this expanding ability forms the base for the development of abstract thinking skills. Within the framework of an integrated instructional program, the child can generalize the skills he acquires and apply them to problems requiring symbolic thinking.

Language Competency Development

A key goal of the program is to develop the child's competencies in both Spanish and English. Education of the child begins by use of the language he brings to school. The overall objective is to build competence in his first language by expanding his basic fund of information, and then to introduce him systematically to English by use of these same concepts. Formal language lessons are given daily.

Perceptual Skills Development

Attention also is focused on the development of visual, auditory, and motor skills which are crucial to the young child's development of abilit6es to read, write, and think effectively. Sequenced activities are presented daily to enhance development of these perceptual skills.

Pupil Grouping for Maximum Mastery

As the children move through the sequence of activities, classroom performance checklists are administered. Planned for individuals or small groups, the checklists provide teachers with objective information about the child's le3el of performance. Using the results of such measurements, observation, and other objective test data, the teacher assigns children to smaller groups within the class, placing each child according to his ability level. These groupings are flexible and vary for different activities. The objective of grouping is to permit each child to experience successful mastery of tasks geared to his ability, or readiness, to achieve. Presentations of instructional activities are modified for the varying ability levels, with slower groups covering the basic materials while faster groups receive expanded tasks. The more competent child, for example, may perform three tasks while the slower child performs only two. The teacher's perceptiveness to individual differences enables each child to experience feelings of success and mastery and to develop an enhanced conception of self.

Behavior Modification

The child's feeling of success and mastery is one of the program's major goals. Another method used to achieve this goal is Behavioral Modification (Madsen, 1968). The child is positively reinforced for any desired behavior. The reinforcement may be either verbal or physical; it may include words of recognition and praise, or it may simply be a smile. No matter how the reinforcement is expressed, it is given continuously when the child is performing in the desired manner.

Inappropriate behavior is ignored as much as possible. Instead of drawing attention to a child who is misbehaving, the teacher praises the desired behavior of another student. Therefore, the well-behaved rather than the ill-behaved child attracts the teacher's and the classmates' attention. The child who misbehaves soon learns that, to obtain the teacher's notice, he must do as she requests, for then the teacher will draw attention to that child and provide positive reinforcement for this acceptable behavior.

Stress on Concrete Objects

In presenting lessons, the teacher uses concrete objects, within a realistic setting, to identify and demonstrate. The teacher does not assume that the child has related the two-dimensional representation to the actual object in a meaningful fashion, but carefully observes the child's responses for evidence that the transition, built into the sequence of activities, has actually been achieved.

The Classroom Schedule

The daily classroom schedule provides time for each of the major elements in the instructional program. A typical daily schedule follows:

Daily Classroom Schedule

8:30 A.M. - 9:00 A.M.	Breakfast	
9:00 - 9:15	Greeting - Group Activity	
9:15 - 9:30	Lesson: Expanded Language	
9:30 - 10:20	Rotation of Groups:	English Lesson Independent Work Activi Small Group Lesson Ordering Materials
10:20 - 10:25	Clean-Up	
10:25 - 10:45	Outside Activity	
10:45 - 11:00	Snack	
11:00 - 11:15	Story: Review story and read a story	
11:15 - 11:30	Auditory Activity	
11:30 - 11:45	Motor Activity	
11:45 - 12:00	Music	
12:00	Dismissal	

The following typical weekly schedule is illustrated by the planned program for the seventh week of the school year for three-year-old pupils:

Program for Three-Year Olds

Seventh Week
9:00 A.M. - 12:00 Noon — Unit: Food

Instructional Element	Monday	Tuesday	Wednesday	Thursday	Friday
Visual	Matching objects according to color	Matching pictures to color	Matching identical pictures Food Lotto	Discriminating Boundaries	Size Concepts: Cylinder case
Auditory	Sounds in the home: real objects	Sounds in the home: Picture Associations	Same vs. Different*	Fast vs. Slow Bean Bag Game	Listening for a word in context
Motor	Obstacle Course*	-	Walking a Line Forward and Backward	-	Jumping - Forward and Backward
Language	Story: The Apple Book	Story: The Carrot Seed	Story: The Apple Book	Story: The Carrot Seed	Story: The Apple Book
Expanded Language	Taste of Food	Smell of Food	What Do We Use? When Do We Eat?	Mystery Bag: Identifying Foods, Real and Plastic	Shopping Game*
Mathematics	-	-	-	-	-
Science	-	Magnifying Glass; Foods	Magnifying Glass; Foods	Identifying Familiar Food - Sense of Touch	Identifying Familiar Food - Sense of Touch
Art/Music	Cantemos Niños	Collage	-	Potato Printing	-

Facilities

The SAUEDC preschool program is housed on the premises of the Good Samaritan Center.

Campus Arrangements and Special Facilities

Three classrooms are used for the preschool program, one for each age group. Four offices are provided for staff use with desks for teachers, aides, design staff, and secretarial staff. The classroom for four-year-old pupils is equipped for use as an observation room. A one way mirror-viewing glass and a sound system allow visitors and staff me]bers to observe.

During the pre- and posttesting periods, three rooms are provided to permit testing in privacy.

The Center provides a library of children's books for classroom use, supplemented with a record library. Two record players and two pianos are located in classrooms, and two tape recorders and an automatic slide projector are available for use as needed.

Food Services

Breakfast and midmorning snacks are served daily from the Center's kitchen.

Other Services

For the preschool pupils, age three, the Center has organized a Parent Involvement program separate from and in addition to the program used for comparison in this study. Included on the Center's staff are a social worker, who works with children exhibiting problem behavior, and a medical staff, which serves all persons in the neighborhood, including pupils in the preschool program.

Children are transported to and from the Center by staff personnel. In addition, transportation is available to parents for Parent Involvement meetings at the Center.

Treatment Personnel

The San Antonio Urban Educational Development Center was staffed for the 1968-69 school year to develop curriculum for each age group, to provide a favorable classroom ratio of pupils to adults and teaching personnel, to provide for translation of curriculum materials to meet the requirements of the bilingual program, to provide for parent-community involvement and liaison, and to provide an adequate evaluation program. Business and secretarial support services also were provided. The staffing component listed in Table 2 does not include Laboratory headquarters personnel.

TABLE 2
STAFFING CHART FOR SAUEDC

Southwest Educational Development Laboratory	Director of the Good Samaritan Center, San Antonio
SEDL Coordinator	Center Co-Director for Program

Evaluation Specialists (2)	Curric. Design Writer (1)	Teachers (3) and Assist. Teachers (3)	Secretarial Staff (2)	Neighborhood Aides (2)

The education and experience level of currently assigned personnel is as follows:

Professional and Nonprofessional Personnel	Education Level					Years Experience		
	Less than H.S.Dip.	H.S.Dip.	Less than College Degree	Undergrad. Degree	M.A. Degree	Less than 2	2-3	4 or more
Professional (8)			1*	4	3	3	2	2
Nonprofessional (7)	1	6				2	5	

*Assistant to the Psychologist for Evaluation

PARENTAL-SCHOOL-COMMUNITY INVOLVEMENT AND PARENT EDUCATION PROGRAM OF THE SAN ANTONIO URBAN EDUCATIONAL DEVELOPMENT CENTER (T_2)

In addition to its work with the parents of pupils in the Good Samaritan Center preschool program, the Parent-School-Community Involvement staff, operating from the Center, conducted a special involvement program for parents of 16 three-year-olds who were, in every respect, eligible for the preschool program for three-year-olds but were not admitted because of space, funding, and staffing limitations. The program staff was planned to include a curriculum developer who would design products to be used to train parents in methods of advancing the development of their three-year-old children. Since it was not possible to obtain such a person, the evaluation is based on a planning assumption which could not be fulfilled. (As reported later, however, test results on a pretest and posttest basis were obtained and used in the evaluation of this program.)

This program was expected to achieve child development indirectly by affecting the behavior of the youngsters' parents. Benefit was expected to be derived primarily from a specific curriculum designed to teach parents how to enhance child development progress. Supplementary efforts were planned to encourage development as well as produce the following additional benefits:

- To promote parental understanding of the role, nature, and methods of the school.
- To promote school personnel understanding of the target population and the need for participation in programs to improve their conditions.
- To persuade parents of the school's needs for assistance and of the school's recognition of the importance of the parental role in child development.

To persuade teachers to accept parents as partners in educating children.

To decrease the polarization between parental and teacher views regarding reward and punishment of children, how to teach, and how to develop children.

These purposes were to be achieved by opening channels of communication, raising parental aspirations for themselves and their children, aiding parents in understanding the school curriculum and basic subject matter, involving parents as assistants in the instructional program and in other school-sponsored activities, and encouraging parental visits to the school and to parent-teacher conferences.

Beyond these child-oriented activities, the program was intended to broaden parental awareness of the community, its role, resources, and needs. The program also was intended to increase teachers' awareness of the problems and potential of the Mexican American population. Similarly, the program was intended to broaden community awareness of the needs and potential benefits from the Mexican American component-community.

The Pupil Population

As noted previously, the 16 three-year-old children of parents enrolled in the special Parent-School-Community Involvement program were chosen to match in each major variable the pupils in attendance at the Good Samaritan Center preschool program. These children, however, received no preschool program. They live within the same geographical area and are members of Mexican American families of very low socioeconomic status. Like their counterparts in the preschool program, they speak Spanish primarily and

have very little knowledge of English. The following table presents additional descriptive information:

TABLE 3
THREE-YEAR-OLD CHILDREN OF PARENTS IN THE SAUEDC PARENT-SCHOOL-COMMUNITY INVOLVEMENT PROGRAM: DISTRIBUTION BY SEX, POVERTY STATUS, AND AGE (MONTHS)

Sex Distribution		Poverty Status		Age, in Months				Pretest Scores on Stated Instruments		
				36-38	39-41	42-44	45-47	Leiter I.P. Scale	Peabody Picture Vocab. Test English	Spanish
Male	8	4	4	2	2	2	2			
Female	8	4	4	2	2	2	2			
Total	16	8	8	4	4	4	4			
								97.15	57.57	74.50

Instructional Components

As previously reported, the planned curriculum was not developed. However, the involvement program did provide parental instruction through a planned program of meetings of topical interest at the Center, planned meetings in homes for which resource personnel were provided, and parental volunteer activities. The activities for parents also included educational field trips.

Unfortunately for the testing purpose and also for the treatment plan, the program achieved much greater parental involvement for parents of pupils in the Good Samaritan school than for parents of preschool-age children not in a preschool program, the primary target group. Parents of both groups however, did receive instructional programs on such topics as:

- Storytelling techniques
- Cancer
- Alcoholism
- Nutrition
- Child Care
- Mental Health
- Hygiene
- Importance of School Attendance

The program staff maintained a daily log of parental involvement activities which reflect a wide range of activities with the parent groups and a substantial contribution of parental interest and effort to the program.

Facilities

The parent involvement program was housed on the premises of the Good Samaritan Center in a portable building. Meeting rooms were provided as needed. Audio-visual equipment was available for specific program use, and staff members used cameras to record special events. The testing program, conducted by the preschool evaluation staff, was administered in testing rooms provided at the Center.

Program Personnel

The staff for the parental involvement program (including the program for preschool children enrolled at the Center) consisted of a program coordinator, a community agent, two community aides, and a secretary. The first two positions were held by persons with undergraduae college degrees; the aides were chosen for their ability to interact with people of the community, rather than educational preparation. All program personnel were bilingual.

III. THE EVALUATION DESIGN AND SETTING

The evaluation design provided for a comparison group of pupils whose development during the same period could be accurately measured by the same instruments used with the experimental children. Children for the comparison groups were selected from comparable socioeconomic circumstances, ethnic background, and relatively equal initial levels of development. For ease in contacting the children, administering test instruments, determining the nature of experiences encountered, and for opportunities to observe their circumstances, the most readily available children meeting these criteria were those attending nearby day care centers.

THE DAY CARE CENTERS' PROGRAMS

Although evaluation designers had assumed that an adequate number of three-year-old day care students could be found at a single center, in fact no one center had as many as 16 children who met the required criteria. The sample, therefore, was composed of all the children in three separate centers, a total of 19 children. At posttest date, however, only 14 of these children remained in the programs; findings, therefore, are based on these 14. Of this latter group, one child was a pupil at Guadalupe Community Center, three were at Mirasol Day Care Center, and ten were at Kenwood Child Development Center. All three centers serve areas similar to that served by the Good Samaritan Center (SAUEDC). The Mirasol and Kenwood centers operate Head Start programs.

The Pupil Population

As is true for the children in Treatment Groups T_1 and T_2, all children in the day care programs are from Mexican American families of low socio-

economic status, speak Spanish primarily, and have very little use of English. The distribution and initial test scores of the children in the three centers can be seen in Table 4.

TABLE 4
DAY CARE CENTER THREE-YEAR-OLD PUPILS IN GROUP T_3:
DISTRIBUTION BY SEX, CARE CENTER, AGE (MONTHS), AND
GROUP IQ MEAN TEST SCORES AT PRETEST

		Number of Pupils Distributed As To:							Pretest Mean Scores		
		Day Care Center			Age in Months				Leiter	Peabody Pic. V.T.	
Sex	No.	K	M	G	36-38	39-41	42-44	45-47		English	Spanish
Male	7	5	2	0	1	4	1	1			
Female	7	5	1	1	1	0	5	1			
Total	14	10	3	1	2	4	6	2	99.09	59.71	76.07

K = Kenwood Child Development Center
M = Mirasol Day Care Center
G = Guadalupe Community Center

Guidelines for admission to the Kenwood Child Development Center, which are similar to those for the other centers, set annual family income for a family of four at no more than $3,200, the poverty level set by the Orshansky Index. Only four families represented at the Center were above the poverty line; 42 were below it; and four were welfare recipients. Of the 50 families sending children to the Center, 37 were of Mexican American origin and 13 were Negro Americans. Twelve children were three years old, 18 were four, 19 were five, and one was six.

Instructional Components

Because the subjects are drawn primarily from the Kenwood Child Development Center, its program is described to illustrate the type of instructional components and other services available to the children in Group T_3.

The program is intended to provide an environment where "young children can develop at their own rate physically, emotionally, socially, and mentally."

An environment is provided in which the child may associate with his peers and relate to other adults, thus learning to adjust to an environment away from his family. Field trips are planned to provide experiences to enlarge the child's awareness of his community and to supplement his experiences at the school. The program is intended to help the child develop a favorable self-image and build a vocabulary with standard language patterns.

Materials used in the classroom are of a conventional nature -- building equipment, housekeeping equipment, books, science and art supplies, and materials used for the training of pupils in numerical concepts.

Instructional Methodology

The Kenwood Center program is developed around work-play areas and time blocks of activity periods, quiet and active. Curriculum planning emphasizes specific units of interest to preschool children, used to increase the child's knowledge of his environment and his community. Units are planned well in advance by the Center Director, who prepares a general outline, including objectives and goals. Teachers are then responsible for developing detailed lesson plans. Teaching aids are correlated to the units.

A typical daily classroom schedule provides for a program beginning as early as 7:30 each morning and ending at 5:30 p.m.:

Daily Schedule

7:30 A.M.	- 9:00 A.M.	Free play and morning snack
9:00	- 9:30	Circle (health, check attendance, conversation time, short story)
9:30	- 10:00	Music (listening and active)
10:00	- 10:30	Outdoor (playground equipment and short walks in the area; games)
10:30	- 11:00	Unit (stories, finger plays, dramatizing, art)
11:00	- 11:45	Free play (also, preparation for lunch)
11:45	- 12:30	Lunch
12:30	- 2:30	Nap
2:30	- 3:00	Snack
3:00	- 5:00	Afternoon Activities

Indoor Activities: art, work-play areas, blocks, puzzles, clay, and other manipulative activities.

Outdoor Activities: free play, wheel toys, large playground equipment, games, balance board, etc.

Facilities and Special Services

The Kenwood Child Development Center uses 2,800 square feet of floor space at the St. Luke's Evangelical Church, arranged into three classrooms and office space. In addition, an adequate sleeping area is located in the educational building. Two outdoor play areas are equipped with large playground equipment, sand, water play tables, and wheel toys. A resource library for the staff has a tape recorder, television, a movie projector, show and tell facilities, record players, and other equipment.

Snacks are served mornings and afternoons, and a hot lunch is prepared at the Center.

Health services for the children -- including physical examinations, dental examinations, immunizations, and psychological testing -- are provided by the Metropolitan Health District under contract with the Economic Opportunity Development Corporation. A clinic is maintained in the Kenwood area by the Health Department.

Pupil transportation to and from the Center is the responsibility of parents. The Center does, however, own a station wagon which is available for transporting small groups of children to health and dental clinics and on field trips. Public transportation is used for field trips involving larger groups of children.

Kenwood Center also has a parent involvement program, consisting of monthly meetings held alternately during the day or in the evening. Club officers are active in assisting the Center in planning programs and other functions. An annual picnic is held for families of children enrolled in the Center.

Day Care Personnel

The Kenwood Child Development Center operates with an adult-pupil ratio of approximately 1:5. Broad guidance for the program is provided by an Administrative Director, with an M.S. in Social Work, who operates between the Center and the Economic Opportunity Development Corporation Center. On the regular staff assigned to the Kenwood Center, provision is made for a director, two teachers, two teacher assistants, two teacher aides, one social service aide, one cook, one cafeteria aide, and one custodian. One holds a B.A. degree in elementary education. Other personnel possess many years of experience in early childhood programs. The following table reveals the scholastic background and experience of the staff:

TABLE 5
SCHOLASTIC BACKGROUND AND EXPERIENCE OF STAFF

Position	Highest Education Status Achieved				Experience in Early Childhood			
	Less than H.S. Diploma	H. S. Diploma	Some College	Undergrad Degree	Less than 2 yr.	2 or 3 yr.	4 to 10	11 or more
Director & Teachers (3)		1*	1+	1*		1		2
Teacher Assts. (2)	1		1			1	1	
Teacher Aides (2)	1*	1*				2		
Soc. Serv. Aide (1)		1*				1		

* Kindergarten course at San Antonio Community College

\+ Holds Head Start Teaching Certificate. Has participated in seminars and workshops.

All staff members are required to attend college level classes in child development or early childhood education. The Economic Opportunity Development Corporation provides specialists and other professional persons for training programs and provides tuition for an eight-week training program offered to Head Start personnel at state colleges.

SUMMARY COMPARISONS OF THE EXPERIMENTAL AND COMPARISON GROUP LEARNING SYSTEMS

Three diverse methods of intervention with three-year-old Mexican American children of low socioeconomic status from San Antonio have been described. The Laboratory, using evaluation personnel stationed at the San Antonio Urban Educational Development Center (Good Samaritan Center), attempted to determine for a nine-month period (September, 1968, through May, 1969) the effects of each of these programs, as measured by three psychological tests -- pretests and posttests -- administered to the subjects. As previously noted, the

SAUEDC preschool program has been designated as T_1; the children of parents in the Parent-School-Community Involvement Program as T_2; and children in three neighboring Day Care (Head Start) centers as T_3.

Comparison of Experimental and Day Care Pupils

A random sample of 16 children who met the specified criteria were selected from among three-year-olds in the area served by the Good Samaritan Center to receive the SAUEDC preschool program. A random sample drawn from the same population of children, modified to exclude children with siblings in the SAUEDC, determined the parents who received the special Parent-School-Community Involvement program. The planned randomization of pupils from day care centers could not be obtained because of the relatively small number of three-year-old Mexican American children in neighborhood day care centers. Instead, an availability sample of 19 children was established for the pre-test situation; 14 of these were still in the centers at the time of posttesting.

The comparative status of the three groups of children in respect to determined factors can be seen in Table 6.

TABLE 6

TREATMENT GROUPS OF THREE-YEAR-OLDS IN GROUPS T_1, T_2, AND T_3, DISTRIBUTED BY AGE (IN MONTHS) SEX, SOCIOECONOMIC STATUS, AND MEAN IQ SCORES AT PRETEST

Descriptive Factor	Numbers in Each Treatment Group by Descriptive Factor and Sex											
	SAUCEDC T_1			PACT T_2			D.C.Center T_3*			All Groups		
	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot
Age (Months)												
36-38	2	2	4	2	2	4	1	1	2	5	5	10
39-41	2	2	4	2	2	4	4	0	4	8	4	12
42-44	2	2	4	2	2	4	1	5	6	5	9	14
45-47	2	2	4	2	2	4	1	1	2	5	6	11
Total	8	8	16	8	8	16	7	7	14	23	24	47
Poverty Status												
Low Poverty	4	4	8	4	4	8	(Data not available in this form)					
High Poverty	4	4	8	4	4	8						
Mean Pretest IQ Scores (Not tabulated by sex status)												
Leiter	107.88			97.13			99.09			Not applicable		
Peabody Picture Vocabulary Test												
Form A (English)	99.88			97.37			99.71			Not applicable		
Form B (Spanish)	87.63			76.30			76.87			Not applicable		

* constant sample of 14 children used for evaluation

Table 6 indicates that, in general, the pupils in the SAUCEDC program entered the treatment with a higher level of development than did children in the other two groups. In other respects the groups were similar. The experimental SAUCEDC Group (T_1) scored highest on the Leiter International Performance Scale and on the Spanish form of the Peabody Picture Vocabulary Test. The Day Care Center Group (T_3) scored highest on the Peabody English form, but the differences on this test were small.

Comparison of Instructional Components

The instructional programs for the groups differed in several respects. The SAUEDC program (T_1) was a one-half day program which placed emphasis on cognitive development and language development. The Parent-School-Community Involvement program (T_2) attempted to affect the three-year olds indirectly by modification of parental behavior. The day care centers (T_3) were all-day programs with some of the educational elements of the SAUEDC program but with somewhat more emphasis on simple care and free play.

Comparison of Staffing

The staffing needs and the staffing provisions for the three programs are quite different. The SAUEDC program is based on the development of an educational curriculum requiring the services of well-trained professionals, supported with paraprofessional personnel. In contrast, the PSCI program is based on the assumption that a small group of professionals, supported by liaison personnel from the community served, can modify parental behavior to achieve some or all of the advantages accomplished by direct intervention with the children. The day care program is based on the assumption that a program developed by trained professionals and administered by persons with experience in early childhood programs, but less extensive professional preparation, can achieve most of the same effects as a program such as that of SAUEDC.

Table 7 compares the education and experience status of the professional and paraprofessional personnel used in each program.

TABLE 7
COMPARISON OF PROFESSIONAL AND PARAPROFESSIONAL PERSONNEL,
BY EDUCATION AND EXPERIENCE STATUS, SERVING GROUPS T_1, T_2, AND T_3

Education and Experience	Number of Professional and Nonprofessional*					
	SAUEDC Preschool T_1		PSCI T_2		D.C. T_3	
	Prof	Nonprof	Prof	Nonprof	Prof	Nonprof
Education Status						
Less than H.S. Grad.		1		2		2
H.S. Diploma		6		1	1	2
Some College	1				1	1
Undergrad. Degree	4		2		1	
Grad. Degree	3					
Experience Status						
Less than 2 yrs.	3	2	2	3		
Two-Four yrs.	4	6		1	4	
Five-Ten yrs.						1
More than Ten Yrs.					2	

* Based on Kenwood Development Center

The SAUEDC program has the most personnel with professional training and the least with long term experience; the reverse is true for the day care centers. The adult-pupil ratio for the three programs was:

Group T_1 1 - 3.4
Group T_2 1 - 3.2
Group T_3 1 - 6.5

Comparison of Facilities and Services

While differences do exist in the equipment at the Good Samaritan Center and the Kenwood Center, the physical facilities appear adequate and comparable at each location. Supporting facilities also vary slightly, but each seems to have offsetting advantages. Both programs provide for health services; both provide snacks. Since the Kenwood Day Care Center keeps the children for the full day, it also provides a hot lunch. Transportation is provided for children in the experimental program at the Good Samaritan Center whereas

parents provide transportation to and from the Kenwood Day Care Center. However, the day care center has transportation for other needs. Both programs have parental-involvement support. It would appear, from available information, that the Good Samaritan program is superior in structure and general planning, and places more stress on parental education as a means of enhancing child development.

EVALUATION INSTRUMENTS AND PROCEDURES

Three commercially available instruments designed to measure the developmental level of children, including preschool age children, were used in the evaluation design and implementation for this Early Childhood Experimental Learning System. Each instrument measures cognitive development, while two have additional elements which provide some measure of other attributes, physical and/or social skills. Following are descriptions of the test instruments used.

The Leiter International Performance Scale (Arthur Adaptation)

The Leiter International Performance Scale (Arthur Adaptation) is a nonverbal I.Q. test, standardized from the two-year-old level to the adult level. It requires nonverbal communication between the test administrator and the person being tested. The child is asked to match objects which, by their degree of complexity, are related to various intellectual levels. Visual-motor skills are involved in addition to intellectual skills.

Items in the Leiter become more complex with every subtest or section. The I.Q. of the person being tested is established after eight successive test items have been missed. The test is administered to each child individually, and takes about 30 minutes per person, although it may take longer.

The Leiter was administered as a pretest in the Fall of 1968 and as a posttest in the Spring of 1969 to all the children in Groups T_1 and T_2 and to 11 children in Group T_3.

The Peabody Picture Vocabulary Test (PPVT)

The Peabody Picture Vocabulary Test is standardized in English for ages three to adult. Administered individually, it provides an estimate of the child's verbal intelligence although the child is not required to talk. The examiner gives a stimulus word, such as "dog." The child is then shown four pictures on a single page and is instructed to "point to dog." The child is given items in this manner until he misses six out of eight items sequentially, at which time the test is discontinued.

The PPVT is available in two forms. Form A was administered in English to pupils in all three treatment groups. In addition, a Spanish translation (translated for the Laboratory's use) of Form B also was administered to the three groups. Norms have not been established for the Spanish translation. The norms for the English version of Form B have been used in this report although it is recognized that they may not be applicable. Both forms were administered on a pretest and posttest basis.

The Preschool Attainment Record (PAR)

The Preschool Attainment Record is a subjective measure of the preschool child's physical, social, and intellectual development. Only the teacher of the three-year-old pupils at SAUEDC (Group T_1) used the form to appraise the attainment level of her pupils. The PAR permits comparison of one child with another, or of a given child with himself, in successive measures at successive times. It may be useful also for composing homogeneous groups, assessing individuals for grouping, or comparing groups of children. The

PAR obtains a subjective assessment of the child's functions. It can be administered reliably only by the child's teacher or some other person who has continuing opportunity to observe the child sufficiently to learn his performance level in respect to the designated items.

The PAR includes eight categories of developmental behavior:

Physical	Social	Intellectual
Ambulation	Rapport	Information
Manipulation	Communication	Ideation
	Responsibility	Creativity

The test was intended to permit assessment of children who are not readily accessible to direct examination because of sensory impairment, speech or language difficulties, emotional disturbances, neuromuscular disorders, resistance to examination, cultural problems, etc. It was administered as a pretest in the fall of 1968 and as a posttest in the spring of 1969.

The Child Performance Checklist (CPC)

The Child Performance Checklist is one of nine forms of successive developmental levels designed by the Southwest Educational Development Laboratory to provide information about the sensory skills of very young children. Separate raw scores are obtained for visual and auditory skills and for the child's conservation ability.

The nine instruments are available in English and Spanish. Level 3, Form A was administered in Spanish individually to the three-year-old pupils at SAUEDC and at the day care centers as a posttest only during the winter of 1969. (The instrument was not available in time for pretest use.)

Exhibit A provides a summary listing for each test instrument of the times of administration, the administrator, the tested groups, the testing language, and the publisher.

EXHIBIT A

INSTRUMENTS ADMINISTERED IN EVALUATION OF THE
EARLY CHILDHOOD LEARNING SYSTEM AT SAN ANTONIO URBAN
EDUCATIONAL DEVELOPMENT CENTER

Instrument	Periods of Administration	Administered by	Administered to	Language in which Administered	Publisher
Leiter International Performance Scale (Arthur Adapt.)	Fall, 1968 Spring, 1969	SAUEDC Evaluator (M.A. in Psych.)	Pupils in T_1, T_2, and T_3	Nonverbal	Stoelting
Peabody Picture Vocabulary Test (PPVT)	Fall, 1968 Spring, 1969	SAUEDC Evaluator (English) Asst. Psychologist (Spanish)	Pupils in T_1, T_2, and T_3	Form A-English Form B-Spanish	American Guidance Services
Preschool Attainment Record (PAR)	Fall, 1968 Spring, 1969	Teacher	Pupils in T_1 only	Subjective Nonverbal	American Guidance Services
Child Performance Checklist (CPC)	Winter, 1968-69	Assistant Psychologist	Pupils in T_1 and T_3	Spanish	Southwest Educational Development Laboratory

Data Collection Procedures

The evaluation instruments were administered by SAUEDC (Laboratory) personnel. The nonlanguage Leiter International Performance Scale was administered by the Site Evaluator, a trained psychologist, who also supervised the administration by the Assistant Psychologist of the English and Spanish versions of the Peabody Picture Vocabulary Test and the Child Performance Checklist (Spanish). The SAUEDC classroom teacher prepared the Preschool Attainment Record (PAR) on her pupils.

In order to permit the children to become adjusted to the school situation and to test personnel, testing was deferred until the last week of September, 1968 (third week of school at SAUEDC). At that time the Site Evaluator and the Assistant Psychologist began a cycle testing operation, testing a group of pupils in Group T_1 one day, in Group T_2 the next day, and in Group T_3 the third day. The cycle was repeated until all three-year-old children (and the four- and five-year-old children in SAUEDC taught under an NIMH funding arrangement)* had been tested. This required several weeks. The same process was followed in the spring for the Leiter and Peabody testing, beginning on April 15, 1969, and continuing for several weeks. The PAR was completed in November 1968 by the SAUEDC teacher; the Child Performance Checklist was administered during the first week of April 1969 to Groups T_1 and T_3.

In each instance the answer booklets and response data were collected by the Site Evaluator and forwarded to Laboratory headquarters in Austin for review and analysis. The tabulated and analyzed scores were then provided to the Site Evaluator for preparation of the evaluation report.

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* Data collected on these older children will be available for longitudinal analysis for school years 1969-70 and 1970-71. Because of program changes, they will constitute additional comparison groups for the pupils who were age three in 1968-69 and age four in 1969-70.

Problems with Evaluation Instruments

While the instruments administered for this evaluation design are useful for various purposes, each presents special problems which should be understood for proper conclusions to be derived from test results.

The Leiter

A prime advantage of the Leiter is that it requires no verbalization. However, it is a time-consuming test which requires special training if administration is to be reliable, for administrators can unwittingly provide clues to answers if they are not careful to control their own movements, facial expressions, and reinforcement sounds. In the current report, pretest administrations of the Leiter apparently gave inflated IQ scores on preschool Mexican American children, at least in comparison to scores on the other IQ measures used. Because it eliminates the language barrier, the Leiter has a significant benefit in the Laboratory's programs until some better measure can be found.

The PPVT

Although this test does not require a verbal response, the questions are asked verbally. Experience at San Antonio suggests that the vocabulary used in test administration is too advanced for very young disadvantaged children, and there appear to be too few items at each age level to permit accurate discrimination between groups. Because the words on the test are not words considered necessary to be taught in a preschool program, the test is not useful for evaluating the effects of such a program. A test modelled on the Peabody but with a lower level vocabulary, specifically selected for the preschool-age child, would be extremely useful, especially if it also contained enough items at each level of difficulty to permit more specific age discrimination.

The PAR

The Preschool Attainment Record provides a good picture of the child's overall development, and it has the uses explained in the test's description. Unfortunately, however, for comparisons between groups taught by different teachers, it is difficult to control against inaccurate rating. If teachers understand that heavy reliance will be placed on the test in judging the efficacy of programs to which they are committed, it is feared that the ratings at best will be dubious unless the instrument is supplemented by some type of independent checking system.

Other Problems Associated with the Evaluation Implementation

As previously indicated, there were problems in the evaluation implementation because one of the tests had to be translated into Spanish and the available norms applied only to the English version. The Laboratory's Child Performance Checklist could not be made ready in time for pretest use. There were indications that initial delays in beginning the testing program in the fall of 1968 might have caused pretest scores to be higher than would have been true had there been no benefit from the early training already given these children. This seemed especially applicable on the Leiter with Group T_1 as compared to the other groups. Despite special efforts made to "acclimate" children in the T_2 Group to the school and testing situation, there were evidences at the pretest date that some of these children were still extremely apprehensive; a few were even untestable.

Adequate testing facilities were available at SAUEDC for testing children in Groups T_1 and T_2. Less conventional, but quite adequate, facilities were available at the day care centers. As has been noted, the T_3 children had to be drawn from three centers in order to obtain a sample adequate in size for comparison purposes. Even then, this Group dropped from 19 to 14 children on one test and to only 11 on another.

These problems with the instruments and the test administration cannot be ignored. Nevertheless, it is believed that considerable credence can be given to the evaluation results because results are reported only on children who received both a pretest and a posttest where this is the basis for the evaluation, because the results generally are consistent, and because they appear to have considerable face validity.

IV. FINDINGS AND CONCLUSIONS CONCERNING THE SAUEDC EARLY CHILDHOOD LEARNING SYSTEM

The evaluation program for 1968-69 was intended to permit the testing of several hypotheses listed at the end of Chapter I. While firm confirmations or rejections were not expected, the findings seem sufficiently conclusive to permit a firm conclusion to be reported for each hypothesis.

HYPOTHESES

The central theme of each hypothesis is that educationally deprived children of preschool age start with specifically definable handicaps, in terms of the educational system, which can be eliminated by a carefully structured learning system.

Hypothesis I

> Children from educationally deprived homes will score below national norms on standardized test instruments which require the use of language in test administration.

This hypothesis is, of course, well supported by the literature concerning other studies. The findings in this study also support the hypothesis.

Findings For all three groups of preschool children (T_1, T_2, and T_3) the evaluation design called for the administration of language and non-language developmental and intelligence tests. The Peabody Picture Vocabulary Test, a verbal measure, was administered in English (Form A) and in Spanish (Form B). Against a norm of 100 I.Q. on these measures, all three groups of children had pretest mean scores well below national norms, with most of the children scoring more than one standard deviation below.

Scores on the English version of the Peabody (Form A) were low, reflecting, as might be expected, the limited oral vocabulary of three-year-old children whose native tongue is Spanish. However, the Spanish version (Form B) also indicates a mean level below the normal distribution for three-year-old children. Further it was noted that there is some question about application of the English-version norms of Form B to the Spanish translation of the instrument. The fact, however, that the mean scores on Form B are consistent in ranking for the three groups ($\bar{X}_1$, $\bar{X}_2$, and $\bar{X}_3$) with those achieved on the Form A seems to add some credence to the test results. Moreover, the experimental group ($\bar{X}_3$) on SWIDDE, which scored substantially higher on a nonverbal instrument (See Table 8) also scored substantially higher on the PPVT than did the two comparison groups. The congruence between the nonverbal instrument and the native-language verbal test results appears to justify some confidence in the Spanish Form B results.

The greatest success on the two forms of the Peabody (PPVT) and the greatest success of two nonverbal developmental instruments, for all subjects, can be seen in Table 8 and in Exhibit 8.

TABLE 8

PRETEST I.Q. MEAN SCORES OF GROUPS $\bar{X}_1$, $\bar{X}_2$, AND $\bar{X}_3$
ON LANGUAGE AND NONLANGUAGE DEVELOPMENTAL MEASURES

Measuring Instrument Applied	Head Start Experimentals $\bar{X}_1$	Head Start Cont. Gp. Children $\bar{X}_2$	Day Care Children $\bar{X}_3$	Norms
PPVT = Form A English	78.60	87.07	98.71	100.0
= Form B Spanish	67.63	74.30	78.87	100.0
SWIDDE	117.06	97.10	98.09	100.0
WPPSI	89.94	[illegible]	[illegible]	100.0

*Min. = Not administered

Conclusion At the beginning of the study, all the children tested -- those in the Laboratory's SAUEDC experimental program, the children of parents involved in the SAUEDC Parent Involvement Program, and the children in the day care centers selected for comparison — scored below national norms on tests which required the use of language for administration.

Hypothesis II

> Children from educationally deprived homes, when tested on standardized instruments which do not require language in the test administration, will score at or approximately at national norms for middle-class children.

Findings In Table 8 the pretest mean scores of all three groups of children are shown for the Leiter, a nonlanguage test of intelligence which relies heavily on visual discrimination. In addition, the results of the PAR (Preschool Attainment Record) for the experimental pupils (T_1) are shown. In contrast to the results on the Peabody Picture Vocabulary Tests, which emphasize language for administration, the pupils tested with the Leiter and the experimental pupils tested with the PAR performed at levels well within the normal range.

Conclusion At entry into the Laboratory's program, the day care centers, or its program of parent involvement, three-year-old children tested on standardized instruments not requiring language in the test administration did score at or approximately at the national test norms.

Hypothesis III

> The Laboratory's planned Early Childhood Education System will raise the intellectual performance level, as measured by standardized instruments, of the impoverished Mexican American child significantly more than will

a. An indirect intervention in the child's development through the use of a structured Parent Involvement program, or

b. A direct intervention through a traditional nursery care program, as exemplified by the programs of selected San Antonio Day Care Centers.

As indicated previously, the Laboratory's planned Early Childhood Education Learning System is built on four structural components:

1. Concept-affect formation.

2. Development of sensory motor skills.

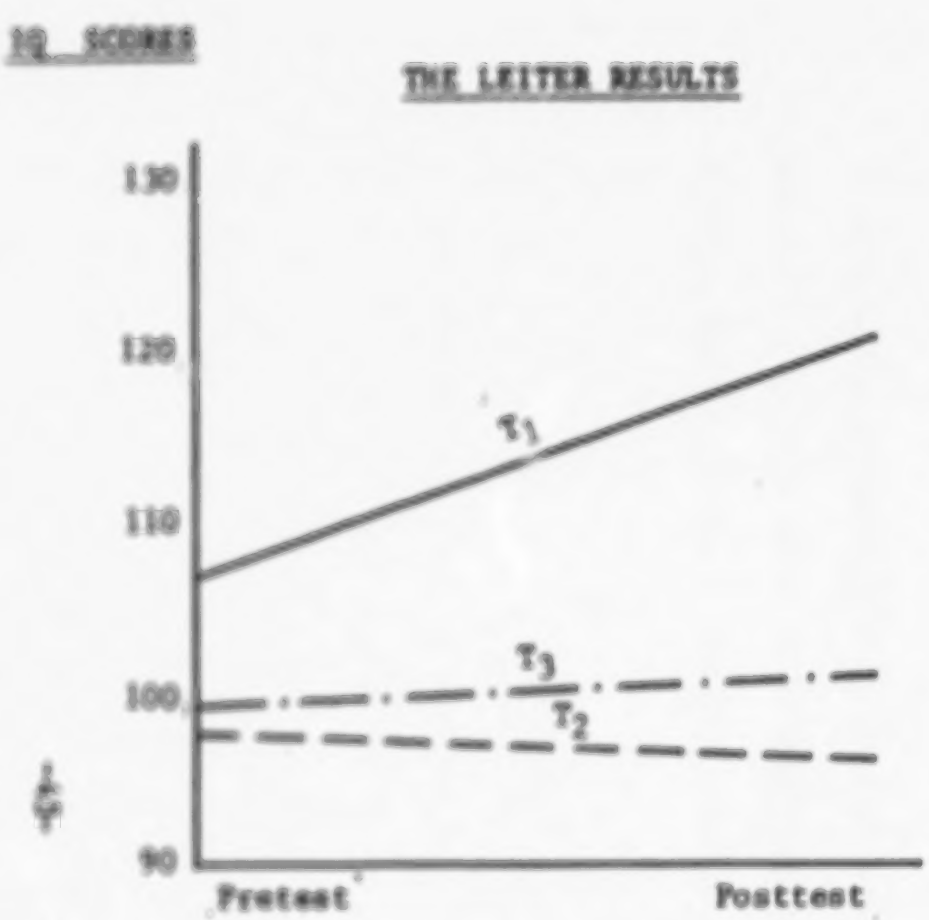
3. Development of language skills.

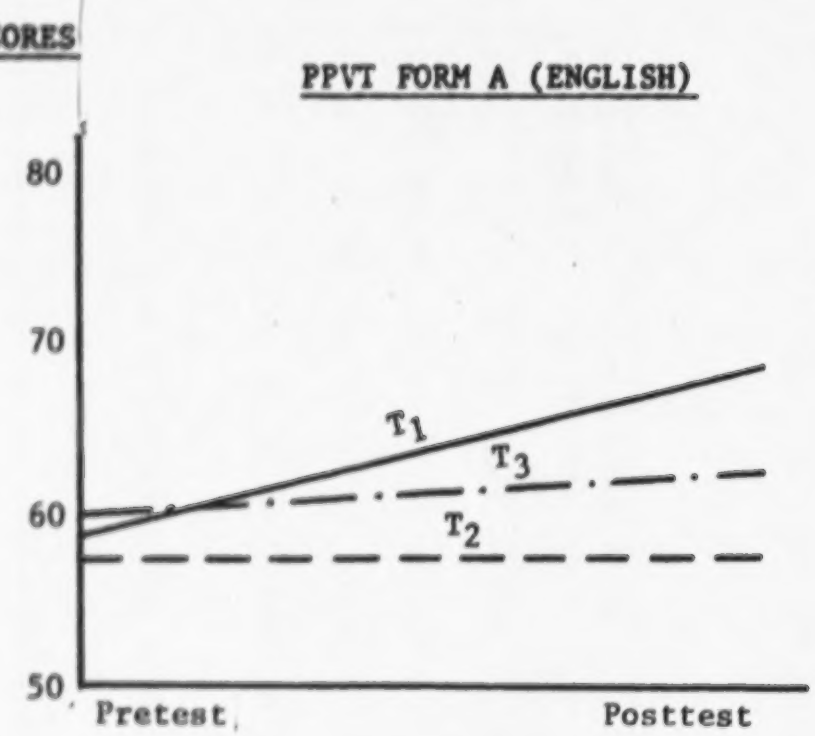
4. Development of thinking processes.

Findings A comparison of the posttest scores of pupils of the three treatment groups with the pretest scores, on the instruments listed in Table 8, indicates a substantially greater gain in each instance by the pupils of the SAEDC experimental program. In Exhibit B, a line drawing shows the pretest and posttest scores on the Leiter and on both forms of the PPVT for all three treatment groups. The Preschool Attainment Record was administered only to Group T_1. On this instrument also the experimental pupils achieved a statistically significant gain ($F = 20.056$; d.f. = 1, 15; $p < .0007$; pretest score 99.94; posttest 107.36; gain 7.62 AQ). The gain achieved by T_1 is greater in each instance. For the Leiter and the Spanish version of Form B, the gain is statistically significant, as can be seen in Table 9.

EXHIBIT B

PRETEST AND POSTTEST SCORES OF TREATMENT GROUPS T_1, T_2, AND T_3 ON THREE DEVELOPMENTAL MEASURES





T_1 - San Antonio Urban Education Development Experimentals

T_2 - Children of parents involved in Parent Involvement program component sponsored by SAUEDC staff.

T_3 - Day Care Center pupils

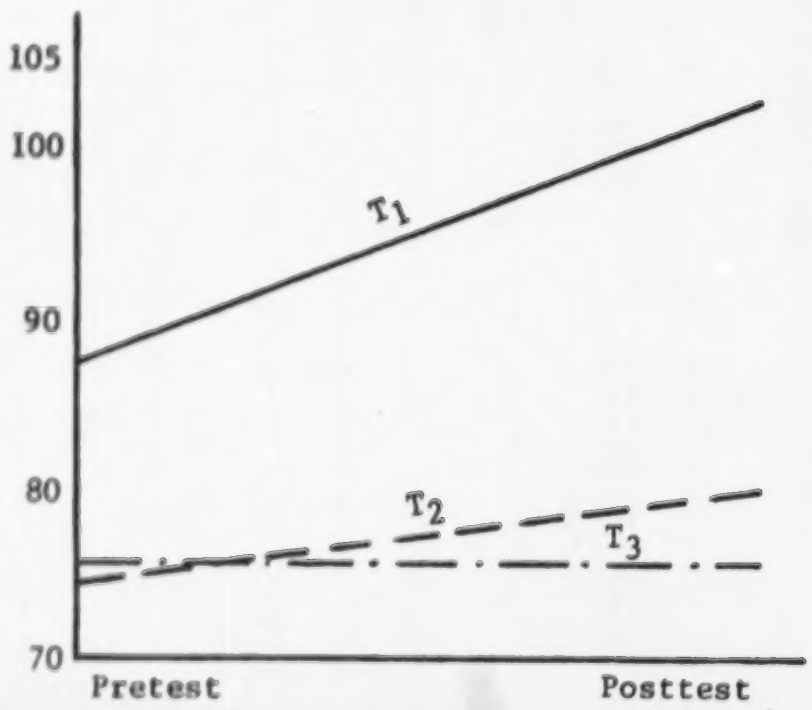


TABLE 9

MEAN PRETEST AND POSTTEST SCORES FOR TREATMENT GROUP T_1 AND COMPARISON GROUPS T_2 AND T_3

I.Q. SCORES

Measuring Instrument Applied	Good Samaritan Experimentals T_1			Good Samaritan Par. Inv. T_2			Day Care Compar. T_3		
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
Leiter	107.06	120.69	13.63**	97.15	96.31	-.84	99.09	101.36	2.27
PPVT-Form A (English)	59.00	69.19	10.19	57.57	57.57	0.00	59.71	62.59	2.88
PPVT-Form B (Spanish)	87.63	102.38	14.75**	74.50	80.14	5.64	76.07	76.93	.86

I.Q. as obtained by the method described in the respective test manual.

**p < .01

The reported gain for the SAUEDC experimental pupils on the Leiter is significant (p. < .01), as shown in Table 9. The children in Groups T_2 and T_3 showed no significant gains on the Leiter (p < .8173 and p > .5983, respectively).

A comparison of posttest Leiter results confirms the significance of the gain of the experimental group as compared to each of the other groups and indicates that the difference between Groups T_2 and T_3 is not significant.

Group Comparison	F	d.f.	p.
T_2 and T_3	.9997	22	Not Significant
T_1 and T_3	4.9181	25	< .001
T_1 and T_2	4.9282	27	< .001

The analysis of gain on the Peabody, Form A (English), in Table 9 did not reveal a statistically significant difference within any of the three groups of children. The gain of the experimental children at SAUEDC did, however, approach statistical significance ($F = 3.249$; d.f. 1,15; $p. > .089$). For the other two groups the gain clearly did not meet the statistical significance test (T_2: $F > 1.0$; d.f. = 1,13; $p. > 1.000$; T_3: $F = .485$; d.f. = 1,13; $p. > .505$).

The data on the Peabody, Form B (Spanish), in Table 9 displays a statistically significant gain in scores for the experimental pupils (T_1, at SAUEDC) ($F = 13.269$; d.f. = 1,15; $p < .001$). The gain for the other two groups was not statistically significant (T_2: $F = 1.189$; d.f. = 1,13; $p. > .296$; T_3: $F = .055$; d.f. = 1,13; $p. > .813$).

The comparison between groups, using the Peabody Picture Vocabulary Test Form A (English) and Form B (Spanish) indicates a clearly significant gain for T_1 when compared to either group T_2 or group T_3. The data also show that when groups T_2 and T_3 are compared, there is no significant difference:

	Group C Comparison	t	d.f.	p.
Form A	T_2 and T_3	1.4285	26	Not significant
	T_1 and T_3	2.5079	28	< .02
	T_1 and T_2	5.0169	28	< .001
Form B	T_2 and T_3	.2998	26	Not significant
	T_1 and T_3	5.9100	28	< .001
	T_1 and T_2	4.5933	28	< .001

The preceding tables and exhibits reported an initial (pretest) difference between the three groups of children. To determine whether initial capacity was responsible for greater gain by the experiments, an analysis of covariance was made for the pretest and posttests scores on the Peabody Form A (English) and the Peabody Form B (Spanish).* This analysis matches the groups on the basis of the mean pretest scores of all the pupils in all three groups. The effect of this analysis is to equate the three groups at pretest and to compare the posttest scores against the predicted posttest scores developed from the "grand" pretest mean. For the Form A, the grand mean and the adjusted group means (at posttest) developed by this analysis are listed in Table 10.

TABLE 10

COMPARISON OF GAIN OF THE THREE GROUPS IN ADJUSTED POSTTEST MEANS AGAINST PRETEST GRAND MEAN: PEABODY FORM A (ENGLISH)

Group	Pretest Mean Actual	Pretest Mean Grand	Posttest Mean Actual	Posttest Mean Adjusted	Gain (Adjusted Less Grand Mean)
T_1	59.00	58.72	69.19	73.9	+ 15.2
T_2	57.57	58.72	57.57	57.9	- .8
T_3	59.71	58.72	62.59	62.2	+ 3.5

Between groups: F-ratio = 8.54; d.f. = 2,39; p. < .0011

* A similar test by covariance for the Leiter is reported in Appendix B. The relationships are consistent with those previously reported and with those shown in Table 10 for the Peabody, Form A. Results of the test have been plotted with those for the two Peabody forms on Exhibit C.

The covariance analysis on the Peabody Form B (Spanish) produced similar results although the mean scores were considerably higher for each group. The positions of Groups T_2 and T_3 are, however, reversed.

TABLE 11

COMPARISON OF GAIN OF THE THREE GROUPS IN ADJUSTED POSTTEST MEANS AGAINST PRETEST GRAND MEAN: PEABODY FORM B (SPANISH)

Group	Pretest Mean		Posttest Mean		Gain (Adjusted Less Grand)
	Actual	Grand	Actual	Adjusted	
T_1	87.63	79.5	102.38	100.0	+ 20.6
T_2	74.50	79.5	80.14	81.7	+ 2.2
T_3	76.07	79.5	76.93	78.0	- 1.5

Between groups F-ratio = 11.26; d.f. = 2,40; p. < .0003

The covariance analysis on both forms of the Peabody demonstrate the far greater achievement gain of the experimental (T_1) Group. This greater gain is also exhibited on Exhibit C. The gain for Group T_1 is statistically significant; there is no significant difference between Groups T_2 and T_3 on either of the instruments.

Conclusion The findings demonstrate quite emphatically that the SEDL structured Early Childhood Education Learning System did raise the intellectual performance level of inpoverished Mexican American children significantly more than did the indirect intervention through the use of a structured Parent Involvement program or the direct intervention through a traditional nursery care program exemplified by selected San Antonio Day Care Centers.

SUMMARY OF CONCLUSIONS

All three hypotheses for the SAUEDC structured Early Childhood Education Learning System were confirmed by the evaluation findings. Educationally deprived children did score below national middle-class norms when tested on standardized instruments requiring language in the test administration. However, they tested at, or approximately at, national norms on standardized instruments which did not require the use of language in the test administration. Finally, the children at the San Antonio Urban Education Development Center (T_1) showed statistically significant gains in I.Q. scores during the 1968-69 school year while children in the comparison groups did not.

These findings support the continued use of the SAUEDC preschool program and its extension, under carefully controlled conditions, to other sites on an experimental basis. The Laboratory is, therefore, extending the SAUEDC program into additional experimental preschool programs for the 1969-70 school year. The program will be used in several schools in the Edgewood Independent School District in San Antonio; it will also be used at the McAllen Independent School District's Early Childhood Center operated by the Laboratory in cooperation with that school district and funded by the Office of Economic Opportunity; and it will be used with Negro American pupils in the Bossier Parish Early Childhood Center.

The following conclusions, while not directly supported by statistical analyses, are based on careful observation of the programs:

1. To make the parent involvement program more effective in aiding in the development of the educationally disadvantaged child, it appears necessary to orient the program to education of the parents in techniques for stimulating the development of their children. (The Laboratory is making such adaptations in its program for 1969-70.)

2. The findings indicate that day care and Head Start centers do make a contribution to the development of the child. The continuing adaptation of the conventional programs at the centers which already provide an environment considerably superior to that of many homes of educationally deprived children holds promise for continuing improvement in the results obtained with Head Start children.

3. A well-organized model for staff development is an essential ingredient of the Early Childhood Education Learning System. In 1968-69 inservice training could be provided on a very personal basis because of the limited staff size. To extend the program to other schools, however, will require fully-developed programs of teacher and support staff preparation. (The Laboratory has made considerable progress in developing such a model and will employ it in the 1969-70 school year.)

4. Refinement and expansion of the total evaluation design, with special emphasis on more suitable test instruments, are critical needs in developing and validating the Early Childhood Education Learning System. The instruments used in 1968-69 were as appropriate for the purpose as any then available, but tests of greater validity for educationally deprived Mexican American children are a major need. (The Laboratory is well along in the development of criterion-referenced tests in Spanish and English for use in testing success in achieving behavioral objectives of individual lessons and lesson units. It also is cooperating in the development of Spanish language tests and has developed the Ott Test of Oral Language -- both of which will be important aids in the 1969-70 testing program. Additional norm-referenced tests suitable for such populations, however, are needs not yet met; and a number of tests now used have important weaknesses.

5. The evaluation program used in 1968-69 based conclusions only on the results for a single year. No opportunity existed for any longitudinal study on the program as a whole. Moreover, the samples in each group were relatively small. Both circumstances merit careful attention. (For 1969-70, the Laboratory will be extending its program to larger groups of students. Limited opportunities to compare results with other programs will continue, since the Head Start and day care programs are essentially the only programs with which comparisons can be made at preschool ages. The Laboratory will also initiate longitudinal studies in 1969-70 by following up with students in the experimental program and in the day care program in 1968-69.)

6. The 1968-69 evaluation program placed heavy demands on limited staff resources. Obviously the expansion of sites and of pupils to be given the Laboratory's experimental program will add to the demands for staff time. These needs can be met only to a limited degree by allocation of additional staff resources. (For 1969-70, the Laboratory will continue to work with technological aids and community resource personnel, of various levels, in attempts to achieve optimum efficiency and economy in the extension of its Early Childhood Education Learning System and in the evaluation procedures.)

EXHIBIT C

ANALYSIS OF COVARIANCE FOR TREATMENT GROUPS T_1, T_2, AND T_3 ON THE PEABODY PICTURE VOCABULARY TEST, FORM A (ADMINISTERED IN ENGLISH) AND FORM B (ADMINISTERED IN SPANISH) AND ON THE LEITER INTERNATIONAL PERFORMANCE SCALE.

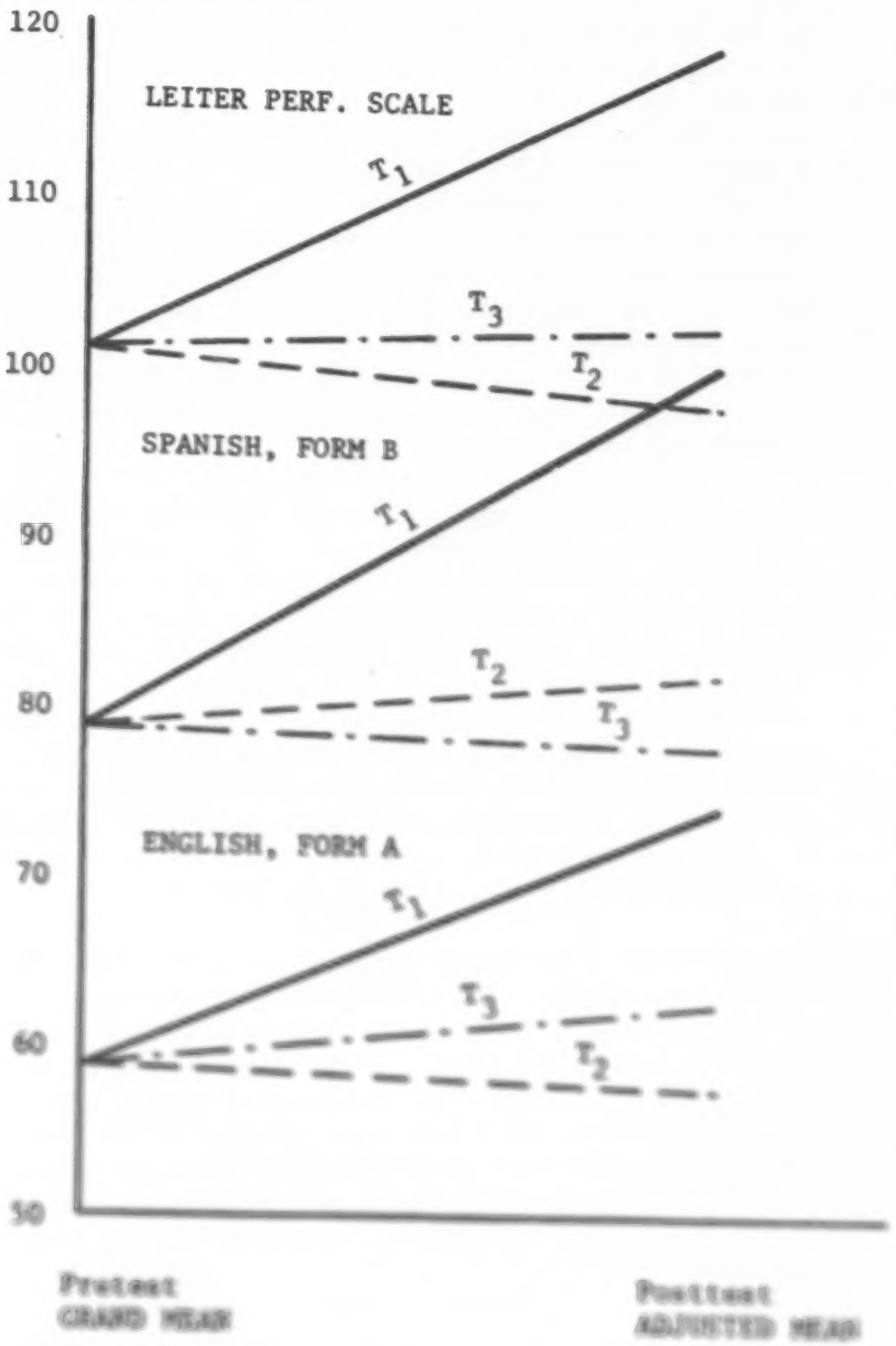
KEY

_____ = T_1 San Antonio Urban Educational Development Center Preschool Children Taught by Laboratory Structured Program

- - - - - = T_2 Children of Parents in the SAUEDC Parent-School-Community Involvement Program

- . - . - = T_3 Day Care Center Children

SOURCE: Tables 9 and 10 and Table B-5.



APPENDIX A

PROGRAM PERSONNEL

In the development and evaluation of each of its learning systems, the Southwest Educational Development Laboratory utilizes resources from every organizational unit within the Laboratory. The program design for each learning system emerges as the result of extensive discussions among various professionals throughout the Laboratory and ultimately is established as the design by the Laboratory Executive Director. Similarly, the evaluation design develops from extensive discussions between program and evaluation personnel on a formal level; informally, other professional and nonprofessional employees also contribute to its development. The final evaluation reports each year include contributions by the professionals in all support divisions of the Laboratory, especially in the Office of Information and Publications and in the Media Development Division.

Despite this broad support base for the development of the learning system and the evaluation designs, principal responsibility does fall upon a small group. For this project, the following table provides, by position title, background information of the persons primarily responsible for the learning system itself and those responsible for developing and implementing the evaluation.

COORDINATING STAFF FOR DEVELOPMENT OF THE EARLY CHILDHOOD LEARNING SYSTEM

ROLE AND GENERAL NATURE OF RESPONSIBILITY	EDUCATION	GENERAL NATURE OF QUALIFYING EXPERIENCE	YEARS
Director, Early Childhood Learning System	B.A., Education and Child Study Smith College, 1950 M.A., Psychology, Trinity University, 1964 Post Master's work, 12 hours	Early Childhood Education Specialist Bilingual Early Childhood Program SEDL, 1968-69	1
		Program Design, Preschool Program for Spanish Speaking Children, Good Samaritan Center, NIMH Grant	2
		Psychometrist, Preschool Program for Spanish Speaking Children, Good Samaritan Center, NIMH Grant	2
		Design & Evaluation of an After School Enrichment Program, Hogg Foundation	2
Early Childhood Education Specialist (Site Coordinator)	B.A., Speech Pathology, Our Lady of the Lake, 1961 M.A., Speech Pathology, Our Lady of the Lake, 1967	Good Samaritan Center, Speech Therapist	1
		Speech Diagnostician, Harry Jersig Speech & Hearing Center	4
		Public School Speech Therapist	

COORDINATING STAFF FOR DEVELOPMENT OF THE EARLY CHILDHOOD LEARNING SYSTEM

ROLE AND GENERAL NATURE OF RESPONSIBILITY	EDUCATION	GENERAL NATURE OF QUALIFYING EXPERIENCE	YEARS
Coordinator of Program Planning	B.A., Economics, Rice University, 1952 M.A., Economics, Texas A&I University, 1958 Doctoral Work, University of Texas	Assistant Superintendent for Instruction, Corpus Christi	1
		Director of Secondary Education Corpus Christi Schools	1
		Director of Special Schools Corpus Christi Schools	1 1/2
		Assistant Jr. High Principal, Corpus Christi	1
		Classroom Teacher, Corpus Christi Public Schools	3 1/2
Community Involvement Specialist	B.A., Psychology, Sociology, Texas A&I University, 1963	Migrant Education Specialist, Texas O.E.O.	1
		Social Worker, Nueces County Welfare Department	1
		Group Worker, Community Settlement House	+

DIVISION OF PROGRAM RESEARCH & EVALUATION

ROLE AND GENERAL NATURE OF RESPONSIBILITY	EDUCATION	GENERAL NATURE OF QUALIFYING EXPERIENCE	YEARS
Division Director	B.A., Mathematics, Howard Payne, 1957 M.Ed., University of Texas, 1963 Ph.D., Education & Mathematics, Univ. of Texas, 1964	Math Teacher - Principal with Migratory Mexican Americans Research - Teacher, University of Texas	5
Process & Product Branch Chief	B.S., Sociology, Colorado State Univ., 1960 M.S., Sociology, Colorado State U., 1965 Doctorial work, University of Texas	Teaching Assoc., University of Texas, Sociology Dept. Research, Colorado State U. Research, University of Florida	1 3 1
Evaluation Coordination Specialist	B.A., Psychology & Mathematics, Univ. of Texas, 1966 M.A., Developmental and Social Psychology, University of Texas, 1969 Doctoral Work, Developmental Psychology in Educational Psychology, 1969	Research Assistant, Psychology Dept., University of Texas	1
Data Processing Branch Chief	B.A., Psychology & Mathematics, Univ. of Texas, 1962 M.A., Psychology, University of Texas, 1965 Graduate studies, Computer Science and Statistical Methods, 1965	Systems Programming Director, Laboratory for Computer-Assisted Instruction, Univ. of Texas Laboratory Research Associate, Dept. of Psychology, U. of Texas	3
Site Evaluation Coordinator	B.A., Psychology, Texas Tech. Univ., 1967 M.S., Psychology, Trinity University, 1969	Testing experience under the supervision of psychiatrist at Community Guidance Center in San Antonio	6 mo.
Site Evaluation Assistant	Thomas Jefferson High School, San Antonio, 1941 Texas Christian University, Lay Theological School, One-week seminar, 1967 State Teachers College, Saltillo, Coahuila, Mexico, Six weeks, 1967 San Antonio College, 1966, 1967, 1968		

APPENDIX B-1

COMPUTER PRINTOUTS: ANALYSIS OF VARIANCE BETWEEN GROUPS T_1, T_2, AND T_3 ON THE LEITER INTERNATIONAL PERFORMANCE SCALE (IQ SCORES) PRETEST SCORES AND POSTTEST SCORES (FALL 1968) (SPRING 1969)

ANALYSIS FOR VARIABLE 1		Group T_1 SAUEDC 16 Subjects				Group T_2 PSCI Children 13 Subjects				Group T_3 Day Care 11 Subjects			
SOURCE		MEAN SQUARE	D.F.	F-RATIO	P	MEAN SQUARE	D.F.	F-RATIO	P	MEAN SQUARE	D.F.	F-RATIO	P
TOTAL		308.6935	31			282.0446	25			113.8030	21		
BETWEEN		406.5000	15			498.1346	12			142.8364	10		
TRIALS		1485.1250	1	11.212	.0046	4.6538	1	.052	.8173	28.4091	1	.304	.5983
ERROR (T)		132.4583	15			89.0705	12			93.3091	10		
T MEAN	PRE	107.0625				97.1538				99.0909			
	POST	120.6875				96.3077				101.3636			

ANALYSIS BETWEEN GROUPS

SOURCE	MEAN SQUARE	D.F	F-RATIO	P
TOTAL	301.1873	79		
BETWEEN	468.8923	39		
GROUPS	2391.6605	2	6.553	.0040
ERROR (G)	364.9589	37		
WITHIN	137.6750	40		
TRIALS	672.800	1	6.241	.0162
G BY T	422.6940	2	3.921	.0278

	GROUP T_1	T_2	T_3
G MEAN	113.8750	96.7308	100.2273

T MEAN	PRE	101.6500
	POST	107.4500

NOTE: THIS ANALYSIS IS PLOTTED AS EXHIBIT B, (UPPER LEFT CHART) IN THE TEXT OF THIS REPORT.

NOTE: Most of the statistical support for the findings in this study have been included in the text or the appendices. Complete data are available at the Research and Evaluation, SEDL.

TABLE B-2
COMPARISON OF PRETEST AND POSTTEST MEAN SCORES OF GROUP T_1 PUPILS
ON THE PRESCHOOL ATTAINMENT RECORD (PAR)
(EXPRESSED IN ATTAINMENT QUOTIENT SCORES)

DATA

16 Subjects

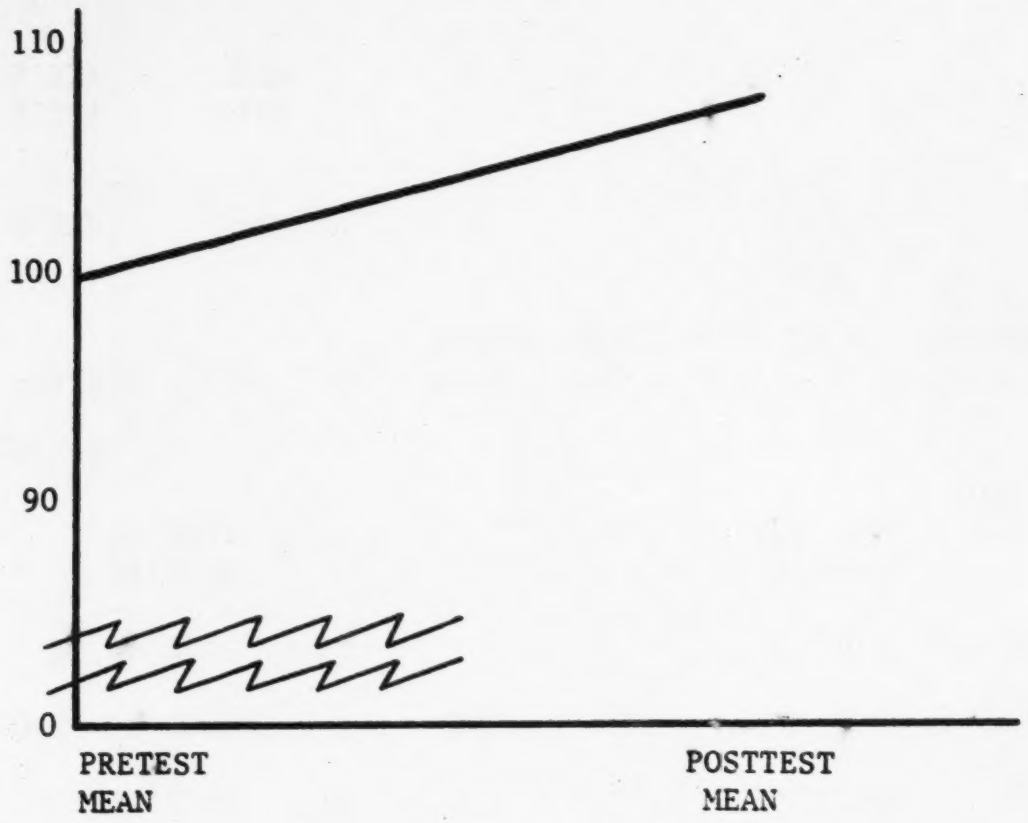
SOURCE	MEAN SQ.	D.F.	F-RATIO	P
TOTAL	166.9677	31		
BETWEEN	290.8667	15		
TRIALS	465.1250	1	20.056	.007
ERROR (T)	23.1917	15		

T MEAN	PRETEST	POSTTEST
AQ SCORES	99.9375	107.5625

PRETEST SCORES COLLECTED FALL, 1968.
POSTTEST SCORES COLLECTED SPRING, 1969.

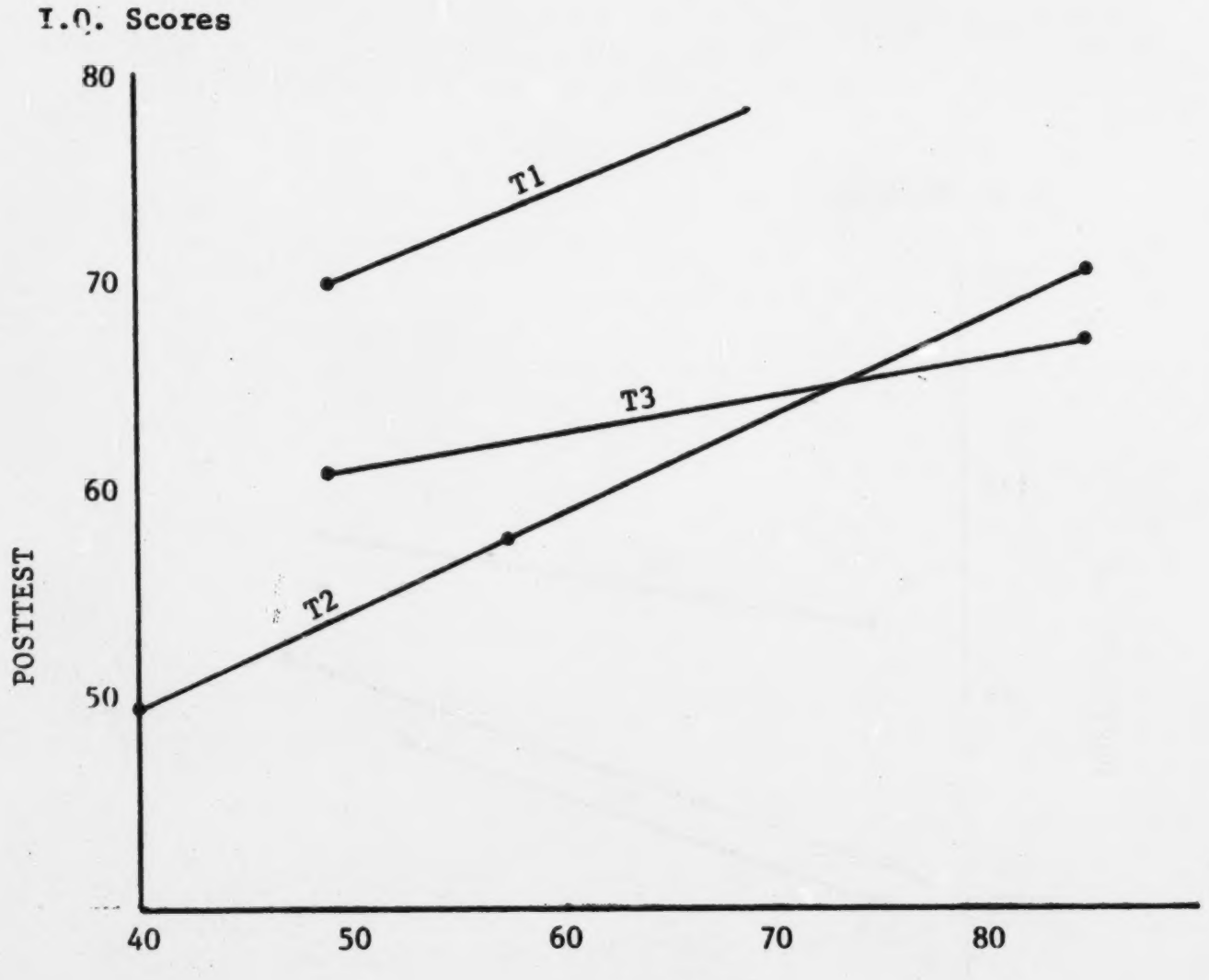
AQ COMPUTED AS PRESCRIBED BY TEST MANUAL

A.Q. SCORES



NOTE: Most of the statistical support for the findings in this study have been included in the text or the appendices. Complete data are available at the Research and Evaluation Division, SEDL.

TABLE B-3. ANALYSIS OF COVARIANCE PRETEST TO POSTTEST SCORES ON THE PEABODY PICTURE VOCABULARY TEST, FORM A (ENGLISH) GROUPS T_1, T_2, AND T_3: PLOT OF GROUP REGRESSION LINES WITH END POINTS SET AT PLUS AND MINUS TWO SIGMA FROM GROUP MEANS ON X



The probability is .7487 (F=.30, D.F. 2,37) that the observed differences among group slopes are due only to chance. The Group Slope coefficients are .3437 for T_1, .4636 for T_2, and .1777 for T_3.

The common slope is .3373.

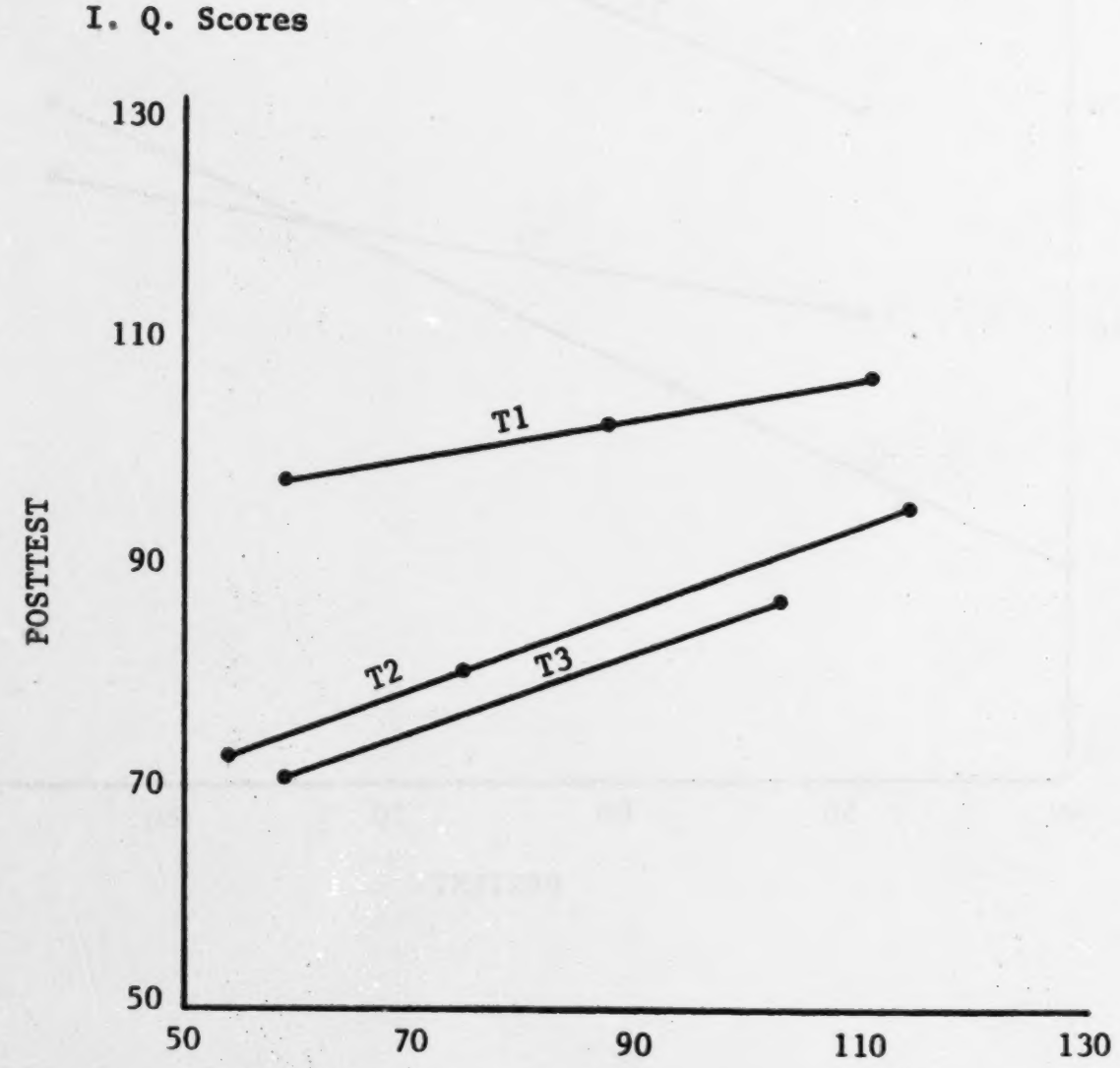
Assuming a common slope, the probability is .0011 (F=8.54, D.F. 2,39) that the observed differences among group intercepts are due only to chance. The adjusted group means ("Y" intercepts at the Grand Mean of "X") are for each group, as follows:

T_1	T_2	T_3
73.8680	57.8964	62.1737

(Additional information and discussion concerning these data are given in the text. See Findings under Hypothesis III.)

TABLE B -4 . ANALYSIS OF COVARIANCE PRETEST TO POSTTEST SCORES ON THE PEABODY PICTURE VOCABULARY TEST, FORM B (SPANISH), GROUPS T_1, T_2, and T_3: PLOT OF GROUP REGRESSION LINES

END POINTS SET AT PLUS AND MINUS TWO SIGMA FROM GROUP MEANS ON "X".



The probability is .8075 (F=.22, D.F. 2,38) that the observed differences among group slopes are due only to chance. The Group Slope coefficients are .1705 for T_1, .3800 for T_2, and .3291 for T_3. The Common slope is .2934.

Assuming a common slope, the probability is .0003 (F=11.26, D.F. 2,40) that the observed differences among group intercepts are due only to chance. The adjusted group means ("Y" intercepts at the Grand Mean of "X")are for each group, as follows:

T_1	T_2	T_3
100.0711	81.6899	78.0145

(Additional information and discussion concerning these data are given in the text. See Findings under Hypothesis III.)

APPENDIX B-5

COMPARISON OF MEAN RAW SCORES OF GROUPS T_1 AND T_3 ON THE LABORATORY'S CHILD PERFORMANCE CHECKLIST, LEVEL 3

SPRING, 1969

MEAN RAW SCORES

KEY

= T_1 SAUEDC PRESCHOOL CHILDREN (15 SUBJECTS)

= T_3 DAY CARE CENTER CHILDREN (14 SUBJECTS)

	PART I AUDITORY		PART II VISUAL		PART III CONVERSATION		TOTAL SCORE	
SOURCE	MEAN SQUARE	D.F.	MEAN SQ.	D.F.	MEAN SQ.	D.F.	MEAN SQ.	D.F.
TOTAL	97.8916	28	80.6010	28	4.9655	28	263.8522	28
GROUPS	194.8750	1	363.6704	1	4.6345	1	952.1287	1
ERROR (G)	94.3182	27	70.1206	27	4.9778	27	238.3605	27
G MEAN	T_1	T_3	T_1	T_3	T_1	T_3	T_1	T_3
	23.4667	16.2857	20.8000	13.7143	11.2000	12.000	55.4667	44.0000
F-RATIO	2.061		5.185		.931		.3994	
P =	.1594		.0292		.6550		.0530	

NOTE: Most of the statistical support for the findings in this study have been included in the text or the appendices. Complete data are available at the Research and Evaluation, SEDL.

APPENDIX C

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